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THE GILCHER BURNED BEFORE FOUNDERING.

ST. IGNACE, MICH., FEB. 18, 1895.

To the Marine Record:

A relic from the lost steamer Gilcher came to my notice to-day, which, in my judgment, will throw some light on the cause of that steamer's loss. The relic is a brass doorstep with the name W. H. Gilcher, put in it with small nails (some of which find enclosed). It was picked up late in October, about nine miles southwest of Charlevoix, Lake Michigan, by Julius O'Brien, who was at that time fishing in the vicinity, being located at Fisherman's Island. Mr. O'Brien returned to his home here yesterday and stated that when they picked up this brass it was attached to quite a large amount of wreckage, consisting of what appeared to be a long piece of coaming or sill, such as would be at the base of a deck-house or cabin, and attached to it were deck beams or carlins, and about it some stanchions and ceiling. He also says that all this wreckage had been burned more or less, the coaming having been burned to a coal for one-half the length of the doorstep and beyond that not so badly burned, but enough so the nails that held the brass in place were all loosened, so the brass came away from the wood without any effort. Any one familiar with the Gilcher could readily locate where this relic belonged. Mr. O'Brien says all the wreckage showed marks of fire as far as he could see it in the water. My idea is that the after upper works partially burned before the steamer foundered. A fire there would naturally render the boat unmanageable by driving the engineers from their posts, and on the night she was lost a large steamer like the Gilcher, if rendered unmanageable, would not be likely to last long. If the builders or owners, or the relatives of the crew, all of which were lost, wish any more information about this matter they can write me and I will get all the particulars available.

LEWIS RYERSE.

A PROPOSED STEEL LIFTING LOCK.

For years the engineer's department at Albany, N. Y., has been at work on the saving of time in lockages along the route of the Erie canal. Forty out of the seventy-two locks have been lengthened so as to lock two boats at a time. The five twins at Lockport have been objects of ill-favor with canal boatmen always, and the lengthening plan being unavailable here, State Engineer Adams has at last solved the problem by the scheme of substituting for the five one steel lift lock, which will lift two boats at a time from one level to another, a perpendicular distance of about 60 feet. The lift compartment will be operated by water power, and less water will be required than is uow used by the five twins by 400 per cent. Steamers and consorts can then sail from Buffalo to New York without uncoupling, except at Newark, Little Falls, and Cohoes, and all the boatmen should be enthusiastic for the improvement. Assemblyman Clark, of Lockport, has been selected to introduce a bill authorizing the construction of the lock.

PACIFIC OCEAN SEALING.

Official statistics of the British Columbia sealing fleet for the year 1894, have just been completed by the collector of customs at Victoria, B. C.

These statistics show the catch to be the largest ever made in a single year, and, as a result of the season's experience, the fear once entertained that the hunters would be seriously handicapped from the compulsory use of the spear has been overcome. The white hunters have quickly learned its use, and now are as skillful with it as the Indians.

As regards the Canadian sealers, 59 vessels were engaged in the trade last year manned by 1,336 men, 518 of which were Indians. There were caught on the coast of British Columbia 11,703 seals; on the Japan coast, 48,993; Copper Island, 7,437; Behring Sea, 26,341: showing a total Canadian catch of 94,474 seals, as opposed to 70,332 skins landed in 1893. The above is exclusive of the skins shown in the official statement to have been landed at Victoria by United States vessels, and which bring the total number of skins handled at Victoria up to 95,048. The average capacity of the sealing vessels engaged in the trade was 66 tons, ranging from 13 to 180 tons.

TRANSATLANTIC TRAFFIC.

The great navigation companies have, in ten years, more than doubled their trade. For example, the North German Lloyd Co. in 1880 transported 95,714 passengers; in 1892, 203,498. The following table gives the number of passengers carried to the United States by the leading companies in 1892:

COMPANIES.	Cabin Passengers	Steerage Passengers
North German Lloyd	20,019	117,016
Hamburg-American Packet Co	12,001	61,738
Cunard Line	16,065	26,528
American Line	14,069	19,448
Netherlands-American Steam Nav. Co.	5,462	31,233
White Star Line	14,095	29,995
Transatlantic Co	9,975	20,954

In postal traffic, figures are not less significant. For 1891, the figures were:

COMPANIES.	Letters, Tons.	Pack'gs, Tons.
The North German Lloyd	130	541
Hamburg-American Packet Co	21	91
Cunard Line	56	243
Netherlands-American Steam Nav. Co.	39½	.....
Transatlantic Co	18	90

If we notice the trade toward the East, we find the number of passengers traversing the Suez Canal to have been 17,000, 98,900, 175,100, and 183,900 in 1870, 1880, 1890, and 1892, respectively.

NAVIGATION TO AUSTRALIA AND JAPAN.

The extension of navigation to Australia is not less marked. In 1850, the maritime movement was represented by 976 ships of 234,215 tons arriving and by 1,014 ships of 263,849 tons departing. In 1891, there were 3,021 ships of 2,821,898 tons arriving and 3,001 ships of 2,872,338 tons departing.

The same increase is to be noted in trade toward Japan. In 1892, France, Germany, and England exported to Japan merchandise to the total value of $50,000,000. The tonnage of Japanese ports amounts to 3,633,314 tons. The German Empire grants every year a subsidy of $1,500,000 to her tonnage.

HOW TO MAKE AN ENGINEER.

At a meeting of the Leeds' English Association of Engineers, on December 1, Mr. W. Clayton, who presided, said that we were told we were not to compete with foreign rivals, because continental people had superior technical education. It was nothing of the kind. Continental nations were able to compete with us because they could supply at lower prices, and that, in turn, was because men worked longer hours for less money. Technical education was a good servant, but a bad master, and conducted on the lines at present pursued in this country, would lead to nothing but disaster. It was no use sending a lad for three years to a technical school, and then at nineteen or twenty giving him a few months' experience in a work shop. To make a good engineer, the good old plan of apprenticeship must be adopted. Let a boy get used to his work, and then let him learn, what he could never do at a college, business habits. This was the only way to make an engineer, and no other way would be successful.

NEWS AROUND THE LAKES.

CLEVELAND, O.

Special Correspondence to The Marine Record.

The Cleveland Ship Building Co. has been awarded the contract to equip the fleet of the Minnesota Steamship Co. with mechanical arrangements for towing.

It has been learned this week that William Miller, a fireman on the ill fated Chicora, was from Upper Sandusky, and that his real name was William Miller Schenck.

A meeting of directors of the Cleveland & Buffalo Transit Co. will be called in a few days by General Manager Newman. Four bids are now filed with him for the construction of the company's new side-wheel steamer and these will be opened at the director's meeting and the contract awarded.

Electrical engineers took this port by storm during the past week, and the display of their many devices in the basement of the Hollenden hotel was a nineteenth century wonder. The General Electric Co. headed the show and exhibited a complete marine installation eclipsing all other exhibits on marine lines and putting to the front the truism "that the best is the cheapest."

Mr. John McGeehan, who has been with the shipchandlery firm of Upson & Walton for a number of years, signed a life charter with Miss Anna, daughter of Mr. and Mrs. Enoch Thomas, of No. 1094 Franklin avenue, on Wednesday night and from this on will take her under convoy. The groom has many marine friends and the young couple received a number of handsome presents. The consort under convoy started away on a short cruise East directly after the ceremony, but they will take up permanent moorings on the West Side.

Ensign W. C. Cole, U. S. N., in charge of the branch Hydrographic office at this port addressed the Shipmasters' Association on Wednesday afternoon at their rooms. Ensign Cole gave a very interesting and improving talk on lake hydrography and was closely attended throughout his discourse by a large and enthusiastic meeting. After the lecture the naval officer was warmly congratulated by all hands for his able address on a subject which has hitherto been almost unknown to lake navigators W. B. Stockman, local forecast official for the Weather Bureau, will occupy the platform next week.

About seventy members of the Civil Engineers' Club passed an instructive afternoon at the Globe shipyard and engine and boiler works. They made a thorough inspection of all parts of the establishment, and general manager John F. Pankhurst, secretary Luther Allen, chief engineer Walter Miller, and superintendent of boiler shop Hambleton took especial pains to answer all questions and make desired explanations. The time for the visit was well chosen, inasmuch as these gentlemen could gain many pointers in viewing the construction of the hull and machinery of the great steel passenger steamship North Land. After the inspection the party were escorted to the dining room of the iron works, where practical illustrations were given in the art of interior decoration. A number of happy speeches were made, and the guests scattered feeling that they had learned a great deal about an extensive manufacturing enterprise, in addition to details of construction.

TORONTO, ONT.

Special Correspondence to The Marine Record.

Toronto's coal receipts by lake were 137,597 net tons in 1894, as compared with 126,825 in 1893.

The machinery is being placed in the new steamer Majestic, building at Collingwood, for the Georgian Bay trade.

The Richeleu & Ontario Navigation Co. has received the $50,000 insurance on the steamer Corinthian, which was burned two years ago near the Lachine Rapids.

The schooner Julia, which was totally destroyed by fire early Monday morning, January 28, at Kingston, was owned by Grant Horn, of Wolf Island, was valued at $2,000, and was insured in the Commercial Union for $1,800. The cause of the fire is not known.

The North Shore Navigation Co., have decided to place patent feathering wheels in their new steamer building at Owen Sound. The planking of the hull, inside and out, is nearly completed, and the deck beams are in position. The work of putting in the machinery that was taken out of the Manitou has begun.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

The steamer America is receiving a new floor over her water bottom.

Harbor Master Capt. James Doyle will be succeeded by Capt. Soper, on March 1.

It is reported that no outside steamers have been chartered yet by the package freight lines.

Bell & Co. are building a $13,000 tug for the Lehigh Valley Railroad. She will be ready for service in May.

The coal shippers are laying in no stocks for the opening of navigation. The cold snap has created a demand equal to the supply.

A. A. Heard, a well-known St. Louis railroad man, has been appointed general passenger agent of the Northern Steamship Co. He will take charge March 15.

The Anchor Line are giving their steamer Lycoming new arches and upper works and general repairs to her hull. Their steamer Delaware is receiving a new Scotch-type boiler 12x14, built by the Lake Erie Boiler Works.

The Union Dry Dock Co. are building a tug for O. W. Cheney, of Buffalo. Her dimensions are 81 feet 8 inches over all, 18 feet 8 inches beam, 11 feet 1 inch molded depth. They are doing considerable repairs on the steamer Nebraska and taking her boiler out.

The H. G. Trout King Iron Works, are building a high pressure engine 13 by 28. for the tug building at the Union Dry Dock Co.'s shipyard. They are converting the two high-pressure engines on the steamer P. H. Birckhead into a fore and aft compound engine.

Much interest is again being taken in the dock frontage question and while a very small part of the river frontage is in the hands of speculators, it would be a good thing for the city to acquire all the harbor frontage of any value, even if condemnation proceedings are instituted.

Many of our readers will regret to learn that David G. Dannecker, the well-known vessel supply man of Buffalo, and part owner of the schooner M. I. Wilcox, died February 1, at his home here. He was widely known and much respected among marine men and leaves a good honorable name and record behind him.

We are sorry to learn that Engineer John Mayberry is suffering from an attack of paralysis in his right side, rendering him helpless. John was engineer on the steamer Cambria last season. He was formerly in the employ of the Union Line for 35 years and was chief on the Tioga when she was blown up by an explosion at the company's dock at Chicago, when many lives were lost and he also had a narrow escape.

Under the contract for handling grain which has been taken by James Kennedy for Buffalo elevators, the reduction in the price of shoveling from vessels is not great, so far as the published rate goes, as the old rate was the same for sail vessels and $3.75 for steam. The real reduction is for hot grain, remnants and lots in the fantails of steamers, where as high as $10 per thousand bushels was formerly charged.

I am indebted to the well-known firm of Russell & Watson, manutacturers of signal lamps for a highly polished paper weight made from a section of their patent fluted lens for ships' sidelights. The Cleveland office of THE RECORD is, I believe, to be furnished with a couple of these paper weights also. I feel safe in stating that the shade of green shown from the sample of fluted lens given to me can not be equaled by any sidelight except those fitted by Russell & Watson, of this port.

At Mills' Dry Dock the work on the Western Transit Co.'s steamer Vanderbilt is nearly completed. She has received a new keel, steel plates on her main keelson, new garboard strakes, new shoe, counterbalance of rudder, enlarged new upper deck and upper works and recalking; the steamer George G. Hadley is receiving a 20-inch steel cord on the outside from the rail down, part new rail and stringers, her hatch beams strengthened with steel plates and recalking outside; the steamer Italia is receiving a new rudder with steel sleeve and recalking all over.

COLLINGWOOD, ONT.

Special Correspondence to The Marine Record.

The cabins of the steamer Pacific have been greatly improved during the winter by changing the deck from the crown form to flat.

Capt. W. J. Bassett is superintending the building of the Black Line's new steamer. This is sufficient evidence that she will be first-class.

It is probable that one of the steamers of the G. N. T. Co. will be put on the Lake Huron route from Detroit, Windsor and Sarnia to the "Soo" via the inside channel. The Atlantic will probably be the boat.

The steamer John J. Long, which will ply between Killarney, French River and Detroit, has been undergoing some important changes. The cabins have been enlarged, giving more staterooms besides a large saloon. Capt. Chapman will pull bells on this boat next season.

At the yards of the Collingwood Dry Dock & Ship Building Co. the new steamer for the G. N. Transit Co. is being rapidly pushed towards completion. Ere this week's RECORD reaches many of its readers, the planking will be completed. The calkers are already at work; the two large boilers which will supply the steamer are on board, and parts of the engine have arrived. By the way, the steamer will be named Majestic. At the last meeting of the town council it was decided to present a set of colors to the steamer, his worship Mayor Callany being instructed to make the presentation.

The officers of the Great Northern Transit Co.'s steamers will be: Majestic—P. M. Campbell, master; W. Bennose, first officer; W. Lewis, chief engineer; F. Cleland, assistant engineer; S. Hewitt, purser; C. Lymon, steward. Pacific—R. D. Foote, master; J. McGowan, first officer; J. W. Aston, chief engineer; J. Belcher, purser; J. Dyon, steward. Atlantic—James Wilson, master; W. Playter, first officer: H. Arnold, purser. At the time of writing the Northern Belle has not been officered.

The North Shore Navigation Co. have not decided on a name for their new sidewheel steamer. It will probably be the City of Toronto or the City of Parry Sound. The latter is the name the residents of Parry Sound are making a push for. The steamer will be ready for launching early in May and will be on her route a few weeks later. The steamer City of London will ply between this port, Owen Sound, and the ports on the south shore of Georgian Bay, while the other steamer will be on the routes of former years, the new steamer taking the place of the Manitou. Manager Burton stated to your reporter that they will have a superior fleet of steamers this season, unsurpassed by any on fresh water.

The North Shore Navigation Co., commonly called the Black Line, have about completed their appointments. Those made are: City of Collingwood—W. J. Bassett, master; W. J. McQuade, first officer; C. Robinson, chief engineer; W. McDougall, assistant engineer; W. N. Storey, purser; R. Matters, steward. City of Midland—F. X. Lafranc, master; J. Black, first officer; W. Whipps, chief engineer: S. Burgess, assistant engineer; P. L. Patterson, purser; S. Fitzgerald, steward. City of London—E. Walton, master; T. Moe, purser. Favorite—George Playter, master; J. Mason, first officer; J. Smith, chief engineer; J. Rose, assistant engineer; S. Junkin, purser; E. C. Simpson, steward. New steamer—A. C. Cameron, master; F. German, first officer; D. McQuade, chief engineer; D. McQuade, purser; Joseph McGuire, steward.

ASHTABULA O.

Special Correspondence to The Marine Record.

Capt. George Owen has returned from a visit with relatives at Irving, N. Y.

The ore docks have plenty of shipping orders, but the ore moves out slowly because of its frozen condition.

As soon as the ice leaves the river in the spring, Carkin, Stickney & Cram's dredge No. 10 will be brought here from Erie, and with one or two other dredges will set about work on a uniform depth in the harbor of 20 feet. Col. Ricketson is now engaged in taking soundings in the river.

SANDUSKY, O.

Special Correspondence to The Marine Record.

The ice in Lake Erie is about 26 inches thick.

The owners of the Island Steamboat Co. have decided upon securing an electric equipment for the new steamer Arrow, together with a mahogany finish, the whole to increase the cost of the boat to about $90,000.

The marine engineers' ball last Thursday evening had a large attendance and was a very enjoyable affair.

DETROIT, MICH.

Special Correspondence to The Marine Record.

Detroit River ferry boats are experiencing a great deal of trouble with the ice, which has a tendency to form in gorges. Ferry steamers are kept busy getting the masses of ice loose so that they will pass down the river.

The owners of the steamer Unique anticipate that the new Babcock & Wilcox boilers now being fitted in their boat will prove in the highest degree satisfactory.

Judge Swan has decided the case of the owners of the schooner B. M. Baker against the tug Brockway. In May, 1891, the Baker was badly damaged by colliding with one of the St. Clair Flats' canal piers. She was in tow of the Brockway, and Capt. John Stevenson, her owner, held the tug responsible on the ground that she was going too fast, and libeled her for the repair bill. Judge Swan sustained the libel and referred the amount of damages to a commissioner for settlement.

MILWAUKEE, WIS.

Special Correspondence to The Marine Record.

A Sheriff's wheel 6 feet 8 inches in diameter has been ordered for a New Orleans tug.

The Manistee Boom Co. has awarded a five years contract for towing logs to the tug Annie L. Smith.

The tug C. D. Thompson came over from Ludington and is on the sectional docks for further ironing.

One of Capt. Kirtland's machines for taking soundings has been placed on the Goodrich liner City of Ludington.

The members of the Milwaukee Yacht Club will hold their annual meeting and banquet at the Plankinton Hotel next Saturday evening.

A. C. Neville, of Green Bay, has purchased the sloop yacht Tempest, and is having her remodeled. For two years past she has been owned at De Pere, Wis.

The Sheriff's Manufacturing Co. are getting out a stern bearing for the steamer Nyack, and she will go to Chicago Thursday, to have it and a new wheel put on.

SPECIFICATIONS FOR A MODEL STEAM YACHT.

Messrs. Charles L. Seabury & Co., of Nyack, N. Y., have closed a contract to build a steam yacht for a prominent New York yachtsman. Her general dimensions will be as follows: Length over all, 100 feet; L. W. L., 83 feet; beam 14 feet; depth of hold, 8 feet 3 inches; draft, 5 feet. She is to be constructed of the best materials and workmanship throughout. The keel of selected white oak in long lengths. Stem, stern post, and deadwoods to be of selected white oak. The shaft log to be lined with copper sleeve, fastened at each end to make watertight. Frames of white oak, straight grained, steam bent in one length from keel to gunwale. Plankshеer of yellow pine in long lengths of good, clear stock. Keelsons, one extra heavy keelson formed in center of yacht, also to have two sister keelsons. Clamps of yellow pine. Planking of good quality yellow pine in long lengths. To be in one thickness under water, and two thicknesses above the water. Bulkheads as follows: One collision bulkhead forward, one steel bulkhead forward of the engine and boiler space, one bulkhead aft of wood, one bulkhead at stern; also one large breast hook fitted forward of sheet steel, steel knees connecting the deck timbers and frames on every other timber. Coal bunkers of steel, properly stiffened and braced by angles. Sides next to hull ceiled with yellow pine flooring. Rudder of cast bronze, with Tobin bronze shank of proper strength and construction. Decks to be flush from stem to stern, to be of clear, well seasoned white pine edged grain, blind fastened. Four brass deck plates for coal bunkers, two on each side, made watertight.

A deck house or social hall forward, to be constructed of mahogany. In the after part of the saloon there will be arranged a small buffet, fitted for glass, china, etc., the center arranged for a beveled glass mirror. A table around the mast, which passes through this house, for dining. Transoms on each side 7 feet long with folding front, arranged to sleep on; also lockers underneath.

Chain locker fitted with forehold. Crew's toilet room aft of chain locker, fitted with marine water closet and stationary set wash basin, mirror, hooks, etc., lighted and ventilated by port lights. The next compartment aft for crew's quarters, fitted with folding berths on either side, with lockers under same. In the after part on starboard side of this compartment a room for captain, fitted with berth with drawers under same. Crew's quarters will be used as a mess room. Port lights fitted on either side. Aft of crew's quarters a galley will be arranged, fitted with large ice box, dish racks, locker for coal, sink with pump connection to tank; this room ventilated by port lights, and also by a ventilator at after end of deck house. Wood work protected by galvanized iron from heat of range.

Boiler and engine room next aft of galley. Bulkhead aft of engine thoroughly protected from overheating staterooms. Floor in engine room covered with sheet brass. Fire room floor of steel.

Next aft of this compartment is arranged owner's staterooms, of which there will be two, located side by side, each to have two large wide berths, with drawers under same, also dressing case fitted with mirrors, books, shelves and racks. One berth to be arranged fore and aft, and one berth arranged athwartships, the foot of same to be across the foot of fore and aft berth. These rooms arranged with sliding doors between same, with large mirror in door. To be lighted and ventilated by port lights on either side. Also skylight from deck. Finish of these rooms to be in cherry, thoroughly varnished and rubbed down.

Directly aft of these rooms on starboard side will be fitted owner's toilet room. On opposite side of yacht from toilet room a bath room will be arranged, furnished with large bath tub, etc., well ventilated by port lights. Aft of toilet room on starboard side is to be arranged a closet to hang coats, clothing, etc.

Aft of these rooms is to be main saloon. Head room not less than 6 feet 3 inches. Finish of the saloon in panel work, arranged with wide transoms for sleeping on, fitted with book rack, rack for bric a brac, etc. In the after end will be arranged a wine locker on port side, and locker for china and glass on starboard side. Between these lockers will be arranged a companionway for entrance to this saloon.

Directly aft of saloon will be fitted the lazarette arranged for storage of lines, etc.

A bulwark and rail will be arranged from bow to stern of proper height, also heaters in saloon, deck house, etc.

Machinery will consist of a "Seabury" design triple expansion engine, and a "Seabury" patent safety water tube boiler of their latest and improved design. Fitted with all appliances of the best design.

Electric bells will be furnished and fitted, connected with saloon, staterooms, social hall, after deck, with proper annubicator to galley.

There will be a bridge arranged on deck house forward, with brass railing around top of same. Stairs at after end. Steering wheel, compass and binnacle, also bell pulls fitted. The yacht will be schooner rigged. Is to be ready for delivery June 15, 1895. Guaranteed speed over measured course is about 13 to 14 miles per hour. The yacht is designed for a comfortable family cruising boat.

FLOTSAM, JETSAM, AND LAGAN.

The schooner O. Shaw has received a thorough rebuild at Green Bay.

Capt. and Mrs. J. H. Frahm, of Deer Park life-saving station, have just returned home after a month's visit in Canada.

Mrs. Thomas Dunford, an estimable Port Huron lady, and mother of F. J. Dunford, the well-known dry dock man, died last Thursday morning, after a short illness.

Senator McMillan has introduced a bill appropriating $15,000 for laying a cable between Grand Haven and South Manitou Island, and to erect wind signals on that island.

New York and Norwalk, Conn., capitalists are to establish a new steamboat line between those cities, and handsome passenger and freight boats will be buiit for the route next spring.

The Ann Arbor ferry boats have both been released from the ice in Lake Michigan, but the No. 1 dropped her wheel off at Manistee. The No. 2 will probably tow her to Milwaukee for a new wheel.

Citizens of Vermillion are excited and elated over the discovery of mammoth salt deposits. The port looks forward to a future greatness to correspond with what she has enjoyed in years now long gone by.

The *Mesaba Range* states that the production of the Mountain Iron mine last year, 573,440 tons, was the greatest output of any mine in the Lake Superior region for the past year. The Chandler comes second.

Capt. C. F. Howe, a former resident of Berrien Springs, Mich., who died at Keats, Kan., recently, was one of the oldest of scientific lake navigators, and made the first chart of the west shore of Lake Michigan, north of Milwaukee.

Capt. L. M. Tyler, who for twenty years commanded steamers of the old Northern Transportation Co.'s fleet on the lakes, died at Pulaski, N. Y., February 15. Since retiring from the lakes he acted as agent of the American Express Co., at Pulaski.

The two masts of the lost steamer Chicora, which were picked up near Saugatuck, have been taken to Douglass, Mich., where they are being spliced together and will be erected as a memorial flag pole. Pieces of her wreckage are displayed in many shop windows in east shore towns.

The new bridge across the St. Louis river at Rice's Point, is now used by the West Superior street car line which connects with the Duluth line at the foot of Garfield avenue. Cars run at short and regular intervals intervals and make close connection at the bridge. This is the only line to West Superior.

The New York Assembly has passed and the Senate will pass the bill making provision for issuing bonds to the amount of not to exceed $9,000,000 for the improvement of the Erie Canal, the Champlain Canal and the Oswego Canal, and providing for a submission of the same to the people to be voted upon at the general election to be held in November next.

The recent death of Capt. William N. Burton has been the occasion of many a reminiscence among the old-time vessel owners and insurance men at Detroit. Burton was the first lightkeeper of the South Manitou lights, and these were the days when lights and buoys on the lakes were few and far between. He was one of the first men to engage in the harbor tug business in Chicago. He was also the first inspector for the old Columbia Insurance Co., long since defunct.

The House of Representatives has passed a bill to equalize the salaries of inspectors of steam vessels. By the provisions of the bill the salaries of the two inspectors at Cleveland are raised from $1,500 to $2,250. Duluth has also been raised from $1,200 to $1,800; Detroit reduced from $2,000 to $1,800; Grand Haven, Mich., increased from $900 to $2,000; Marquette, Mich., increased from$800 to $1,200; Port Huron, Mich., left at $2,000; Milwaukee and Chicago, left at $2,000; Buffalo, raised from $2,000 to $2,250.

Secretary Hopkins, of the Saginaw board of trade, has submitted to Col. Lydecker, of the United States engineer corps, stationed at Detroit, a plan for a fourteen foot channel from the mouth of Saginaw River to Saginaw City, a distance of about twenty-two miles. The scheme iuvolves the stationing of a dredge at Saginaw to cut away shoals as they may form. Col. Lydecker will recommend a new survey of the river and also an appropriation of $150,000 to carry out the scheme of improvement.

Capt. John Prindiville disputes the statement that Capt. Tuttle, who died at Salem, Wis., recently, carried the first cargo of wheat shipped from Chicago, in 1842. Capt. Prindiville states that in October, 1839, he, in connection with Julian Rumsey, took 239 sacks of wheat on scows out on the lake, and loaded them into the brigantine Osceola. The wheat was shipped by Newberry & Dole, who at that time had a small elevator, and were the largest grain merchants in Chicago. Capt. Tuttle's cargo was possibly the first to leave that port in bulk.

The loss of the steamer Chicora recalls to Pentwater people a harrowing occurrence of fifteen years ago. At that time Pentwater had three tugs, the Gem, Messenger, and George Lamont. Strong rivalry finally brought on a race between the Gem, with a measurement of ten tons, and the Lamont, measuring only five tons, to determine which was the more speedy and seaworthy. The contest took place on Sunday, March 14, 1880, in the face of a moderate gale and snow storm from the west. The tugs were to go out into Lake Michigan a certain distance and return. The Gem made the distance and returned in the evening. The Lamont became disabled when four miles out, fell into the trough of the seas and foundered. The next day her wreckage was washed ashore about four miles north of the harbor and later in the season the bodies of her crew, consisting of Capt. Charles Lamont, his son George and Porter Hall, engineer, were one by one cast upon the beech.

CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

PERTINENT POINTS ON LAKE NAVIGATION.

CHICAGO, Feb. 19, 1895.

To the Editor of The Marine Record:

The recent loss of a fine steamer on Lake Michigan, with all on board, calls attention to the dangers of navigation of the lakes, especially in the winter season. The vessel was as good a one of her class, in all probability, as any. She was not overloaded, and was as well provided for emergencies as could be expected There is no one to tell how she was lost, but one fact is prominent, she evidently was knocked to pieces, as far as her upper works are concerned, either out in mid-lake or along the belt of shore ice that was driven to the Michigan shore. The extent of coast along which the wreckage was found would indicate, if anything, the former alternative, moreover the loose ice fields near shore ought to have been rather a protective than a destructive agency were the vessel once well within them. It seems probable, therefore, that she was overwhelmed by the heavy seas, perhaps after disablement of her engines.

The point this emphasizes is that light upper works above the main deck. such as many of our lake steamers (and, in fact, all of the old style propellers) carry, are little better fitted for lake than for ocean vessels and are especially dangerous in the exceptionally severe gales that are liable to occur at any time in the fall, spring or winter months. When a vessel is loaded nearly to her main deck, above which there is only light planking broken by loose-fitting gang-ways, chocks and other openings, she is not as a rule fitted to stand a hurricane in mid-lake.

With all the great improvement in the style of lake vessels of recent years, and many of those now built seem quite as seaworthy as they can be made with their draft of water, there are still some very apparent possible sources of weakness and danger in many now afloat. The subject of hatchways is one that may be mentioned; in many vessels they occupy a very large proportion of the deck, and if not made absolutely secure it is easy to see how dangerous they may be. A hatch cover, if made of too light material, and so arranged as to afford any purchase to heavy seas washing aboard, may become loosened and sink the ship. I have no idea what rules are enforced as to this matter, but am very sure I have seen hatches that did not meet my ideas of perfect security. The short, high waves of the lakes are not less dangerous to insecure deck structures than are those of the ocean and should be just as much guarded against. When we consider that the hatchways on many of our lake steamers extend over 60 or 70 per cent. of the vessel's beam, and are hardly their own breadth apart, the danger of any weakness in their structure or fastening is sufficiently apparent.

Another point that is of not less importance in its way and is more general, perhaps, in its application, is that of compass deviation. Lake steamers do not seem to carry pole or mast compasses and it is doubtful whether many of them have a properly located and reliable standard compass. A binnacle compass or one on the roof of the pilot house, corrected for semi-circular deviation, can not always meet the need, and with the general use of iron or rather steel in shipbuilding, the matter is one of very great importance. With wooden vessels also the nature of the cargo, often of iron or iron ore, must have a certain varying influence that should be studied and allowed for. The correction of the compass by land marks fails during seasons of fog or smoke, and the result is a much larger proportion of strandings than would occur were more attention paid to these points, and to having the ships properly provided with all necessary apparatus. In these matters our lake seamen are behind those of the ocean; there is room for a little more general scientific navigation. The general use of azimuth tables would help matters very materially.

The courses run on the lakes, though short compared with those at sea, are yet long enough to give serious consequences from a slight compass error, and, as things go now, the error must often be far from slight. The writer can himself recall an instance when, on a supposedly straight course from Milwaukee to the Manitou passage, Point Betsey light was unexpectedly made on the port bow by the vessel on which he was a passenger. Had the weather been thicker there would probably have been a disaster. The records of the lakes have many instances equal to this, vessels have fetched up on the shores of Saginaw Bay on their course to Buffalo or have found the head of Lake Michigan when steering for Chicago.

Another point, the charts of the lakes are mostly drawn on the polyconic projection and may on very long, straight courses lead to a slight error that ought to be guarded against. I presume this does not often give trouble, but it is worth mentioning here.

With the increasing proportion of iron and steel vessels, requiring special compass adjustments and which do not stand rough usage on the bottom as well as wooden vessels, though in all other respects more enduring, and the greater draft of modern ships, this subject of compass deviation becomes every year of greater and greater importance.

Another point that ought to be looked to by owners and insurers is that of the supply of charts. Last fall a large lower lake steamer went on a well-known reef on the city front of Chicago, causing much damage, delay and financial loss and affording apparently a good illustration of the need of this attention. Owners of vessels ought to be alive to the need of proper provision in this respect, and insurance companies should demand it.

Another matter, of perhaps less importance, but still one that could well receive attention, is that of signals. With the exception of government vessels and possibly a very few exceptional cases, no vessel on the lakes carries the international code of signals and set of flags. The cost of these would be slight and the advantages very considerable to a vessel thus provided. The absolute necessity for their use might happen but seldom, but occasions when the want of them is a serious matter are liable to occur at any time. Cases when they would be well worth their cost are, in fact, occuring frequently; for instance, the writer has known a life-saving crew to have to row six to eight miles in a heavy sea to find out that a vessel was waterlogged but only wished a tug. As it was, the crew were kept pumping for many hours, longer than would have been the case if they would have put up the signal P. N., "want a tug," which would have been read directly from the life-saving station. The convenience to shipmasters in many such similar cases can be easily imagined.

With the increasing size and draft of lake vessels, and the vastly greater interests they represent than they formerly did, the importance of having them fully provided with everything that insures their safety and aid in their management is evident. A 17-foot channel has already almost revolutionized lake navigation, and the proposed 20 feet from Chicago and Duluth to Buffalo or even to the seaboard will still further increase the change. Attention to these points here enumerated would be a cause of some expense to vessel owners, but really only a very slight one, and the returns in saving of property ought to enforce it. I need say nothing of the possible saving of life which ought to be, of course, the first consideration.

It is a good thing that the national government through the navy department has lately extended its oversight of lake navigation, by the establishment of branch hydrographic offices at the principal ports, thus affording bureaus of information for lake seamen, sending out notices bearing on their work, correcting and revising the charts, etc. These offices have only to become generally known to be generally appreciated by those whom they are designed to benefit, and, in time, will doubtless create a sentiment that will bring about many of the changes required. But, in the meantime marine underwriters, if they look to their own interests merely, will, it seems to me, do well to give them their attention.

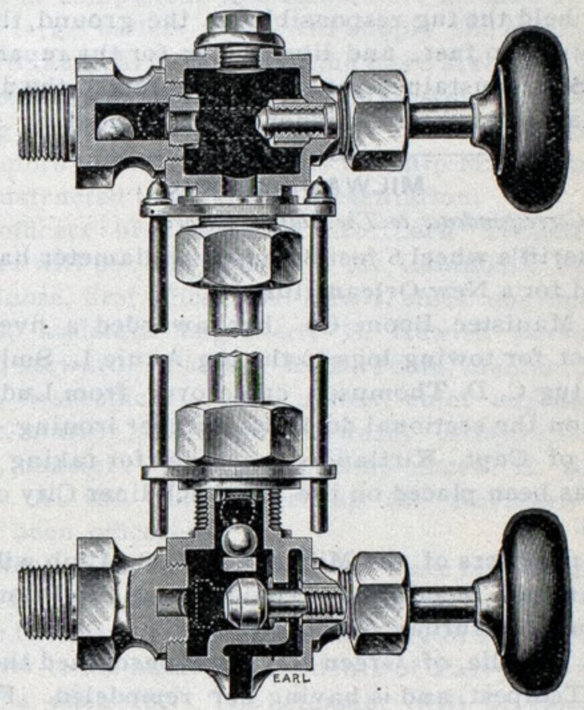
H. M. BANNISTER.

SAILORS' LEGISLATION.

The president has signed the act to amend the act of August 19, 1890, relative to shipping commissioners. The labor organizations throughout the country have interested themselves in this act, which relieves seamen from many restrictions, and the president has been fairly deluged with telegrams and letters and petitions urging him to sign the bill.

AN IMPROVED AUTOMATIC WATER GAGE.

We illustrate herewith an automatic water gage, containing several new features. As will be seen from the illustration, this water gage closes automatically by means of the two ball valves which fly at once to their seats upon breaking of gage glass, effectually closing the gage against both water and steam. One of the new features is turning the handle of the upper valve as far to the left as possible, bringing the valve stem out of line with the glass, then removing cap from top of gage, glass is dropped through, nuts and washers put on, and glass drops to its seat in the lower part of the gage. The gage is again put into service by first closing both valves to their seats against the boiler as shown by dotted lines in the cut, then opening the



lower valve about a half a turn, when water will show in the glass, after which the upper valve is opened slowly; then the lower valve is opened full until it seats against the drain cock chamber. It will be seen that the lower valve is double faced, seating both against the boiler pressure, and also against the drain cock chamber to the right. This brings out the second new feature in this water gage, which is that no pet cock is used, but the gage is drained by a half a turn of the lower valve handle to the right, opening the drain passageway, and this also allows the lower valve to be used as a try cock if the glass breaks and no new glass is at hand. Engineers who suffer frequently from burnt fingers when draining old fashioned water gages by the pet cock on the bottom will appreciate this improvement.

Another new feature is that the valves can be reground to their seats. This is accomplished by having the valve stem run in a gland which is tightened by the packing nut of the stem. Valves are reground by releasing these packing nuts about three turns, which allows the gland to slide in the body of the gage. Valve can then be closed against either seat and reground by simply turning handle back and forth a few times. As will be seen by examination, both upper and lower shanks are screwed into the body of the gage. This permits the bodies to be taken off and cleaned without disconnecting the gage from the boiler. This water gage is manufactured by the Penberthy Injector Co., of Detroit, Mich., having been recently patented by them, and although only a short time on the market is meeting with a very rapid sale.

DEATH OF CAPTAIN MEES.

Capt. William Mees died in Muskegon, Mich., on the 14th inst. Capt. Mees was born in Somersetshire, Eng., in 1826, his father being an English naval officer. When only twelve years old he ran away to America, working his passage across. He reached Chicago eight months after leaving home, and followed a lake faring life. When twenty-six years old he was given charge of the schooner E. C. Roberts, which is still in commission. Three years later he took command of the brig Algoma. He was shipwrecked three times, and had in addition quite a record as a life-saver, having assisted to save the crews from twelve wrecks. His gallant work at the time the Norway was lost is still well remembered on Lake Michigan. Capt. Mees acquired a comfortable competence. Two daughters survive him. Mrs. O. C. Thompkins, of Lansing, Mich., and Mrs. Robert Frazier, of Muskegon, Mich.

CRIB AND PIER CONSTRUCTION.

Col. Jared A. Smith, Corps of Engineers, U. S. A., read a paper on Tuesday evening of last week before the Civil Engineers' Club, of Cleveland, which is worthy of more extended mention than that accorded by the daily press. The paper was devoted to lake methods of crib construction, and is full of interest to all lake people.

The paper opened by stating that the first appropriation made by the United States government for the improvement of lake harbors was in 1825, and provided $5,000 for erecting a pier at the mouth of Cuyahoga River, and $1,000 for completing a pier at the mouth of Grand River (Fairport). Only since the civil war has there been any great advance in these works of improvement upon the Great Lakes. In this work the engineer has been confronted always with the problem, not what is best to be done, but what will accomplish the most immediately beneficial result, with the limited means available for the purpose. While works of a more permanent character and vastly greater cost were in most cases to be preferred from the standpoint of the engineer, yet the demand for an immediate return on the investment left no alternative save to accept that which would serve the present time, and leave the future to take care of itself.

As a result, the almost universal type of works for confining channels of rivers, and for breakwaters to protect areas for anchorage, have been piling or crib work, or both, ballasted with stone. As a matter of economy, the portions of cribs below extreme low water have generally been built of hemlock, for that timber is easily obtained, has sufficient strength, and holds the drift bolts well. For the same reason, and also because of its greater durability, white pine has generally been used for the parts above extreme low water. Oak is usually employed for deck stringers, because of its greater strength to resist the force of falling columns of water, and the weight of ice, which in many cases, is piled upon the structures to a considerable height.

The life of white pine timber in the superstructures, subjected as they are, to alterations of varying moisture and temperature, is from twelve to fifteen years. It is a fallacy to suppose that timber submerged in the fresh water of the lake is imperishable. It will not decay nor be eaten by the teredo, but when for many years subject to the action of waves and currents, even when not reached by ice, it is found upon removal to be very much worn, especially about those places where sticks are joined in framing. In removing some old cribs from Black River at Lorain, in 1893, the corners where timbers were halved together, and the ends of cross-ties when dovetailed through the side walls, were found so badly worn away as to render the cribs entirely worthless, and it became a subject for wonder that they had not fallen apart years ago. The piers and breakwaters are entirely decked over to protect the stone, which, in parts exposed to seas, would otherwise soon be washed out of the compartments. To obviate the wear just mentioned, Col. Smith has devised a new style of crib which has no cross frames, the cross walls being held in place entirely by vertical corner posts in each angle, and by long iron bolts, which are run from one side of the crib to the other through each cross-wall to prevent spreading, as it has been found, in removing old work, that the iron had suffered scarcely any deterioration. Therefore, with the new crib much greater durability of the woodwork is expected.

As to the foundations, where the material of the bottom has been sufficiently hard, the crib caissons rest directly upon the bottom. It is usual on Lakes Erie and Ontario, at least, to place the bottom of all crib work for piers at mouths of the rivers, when the bottom is of soft material, twenty feet below the mean lake level, and to put in such foundations as might be considered necessary below that grade in places dredged for the purpose, foundations of riprap stone being used, the top being eight to ten feet wider than the crib, and the parts projecting on each side being of very large stone packed with smaller pieces, to withstand the wash of the sea and to prevent undermining. Col. Smith has hit upon the plan of increasing the width of the crib two feet at its base by placing timbers longitudinally under the base of the crib, and projecting a foot on each side. The ends of these timbers are so bolted together as to make them practically continuous pieces, thus securing a uniformity of settlement. The old style crib settled about two feet, while the settlement under the improved plan is less than one foot.

Colonel Smith, in describing Cleveland's breakwater, said this load of foundation stone and superstructure was sustained by a thin crust of earth, under which the material was so soft that the weight of the hammer of an ordinary pile driver had driven a mooring pile twelve feet into the soft earth below, after a couple of preliminary taps had penetrated the thin crust.

In earlier days, the piers had little to withstand save the force of seas, which were received on the ends of the piers, or at an angle with their direction so small as to produce but little effect; but as the heavier modern vessels have required deeper channels, so have they also required vastly stronger piers to withstand the shock of collisions, as these heavily-laden vessels frequently strike the piers. The cross ties, which have heretofore been placed in vertical tiers, one in each alternate course, are now being placed in solid walls, and vertical timbers are introduced at the angles at ends of piers, and at ends of cross walls and at tiers of open ties. The method of driving drift bolts has also been changed. The former practice was to drive them in an oblique direction, which is not only more expensive, but is less effective, as if planks or timbers are not laid close together, an obliquely driven bolt will not draw the two together. Holes for the drift bolts are now also bored clear through, the holes being made a quarter-inch less in diameter than the bolts, so that the ends of the wood fibres shall be bent down just enough to afford a great frictional resistance against the bolts being withdrawn. It is also the practice to place longitudinal timbers from the crib out over the foundation about six feet on each side of the crib, to form a sort of apron, so that when great waves fall close by the side of the protection they cannot wash the stone from the foundation and undermine the structure.

Colonel Smith said he had abandoned the custom of raking back a part of the new extension work upon the old structure, as he said disadvantages arose from unequal settling. The lengths which have been employed for cribs range from 25 to 50 feet, and the widths from 10 to 24 feet. In cost and stability there is great advantage in making them as large as possible. Some difficulties were found in building and placing them in position, but these were not hard to overcome. In the summer of 1893, the east pier at Ashtabula was extended 120 feet, and the west pier 240 feet. Only a single crib was used for each of these. When the great storm of October, 1893, occurred, the west pier had been sunk and filled with stone, and a part of the end nearest shore had been built above the water level. Compartments in the outer end of the crib were entirely emptied of stone, but the structure was too strong to be broken, and, although empty, broke the force of the waves from the compartments nearer shore, so that the latter retained their ballast, and thus sustained the whole.

The construction now being made is with special reference to replacing the parts above water with masonry at a future day. The objection to masonry when the piers are at first built is the great expense, and also the certainty that the structure will settle more or less. By the end of the lifetime of the wooden structure, the settling will be over and the masonry may then be brought into use.

M. BAZIN'S ROLLER STEAMSHIP.

No invention involving so radical a change in the construction of steamships has been put before the marine world since the first steamers were produced at the beginning of the century, as the "roller" steamer of M. Bazin, the French engineer. For whereas the hull of a ship has hitherto been built more or less egg-shaped, the roller steamer is a sort of large raft supported by wheels. M. Bazin claims for his invention not only much enhanced speed, but greater stability, friction being minimized as much as possible by rolling over the water, instead of cutting through it. M. Bazin recently explained his plan to a number of naval officers, engineers, and scientists by means of a model roller steamer, and informed his hearers that a trial steamer is to built at St. Denis for the English Channel service only. This boat will be 131 feet in length, and 39 feet beam, having only three wheels on each side, instead of four as in the case of the proposed transatlantic roller steamer, and will make her first trip from Dieppe to Newhaven, and thence to London. The transatlantic steamer which it is proposed to build later will consist of a platform having on each side four enormous hollow wheels, which will support it at a height of from 21 to 23 feet above the surface of the water. About a third of the wheels will be submerged. The shafts for transmitting the rotary movement to the wheels will pass below and across the platform, and, like the wheels, will be of steel. On the platform will be placed the engines, boilers, passengers' cabins, and the dining and other saloons. The wheels will be about 24 yards in diameter, and will have a revolving circumference of about 75½ yards. A new hydraulic rudder, always in action, has been invented by M. Bazin. It consists of a vertical column at the stern of the vessel. From this moveable column will escape a powerful jet of water. It is claimed that with this rudder a vessel will be able to turn in her own length, and to dispense with the services of a tug in going into closed docks or entering slips. M. Bazin argues that in order to obtain a maximum rate of speed there must be a corresponding relation between the rotary force and the propelling force, and his roller steamer will, therefore, be provided with two independent engines, one to propel the vessel forward by means of a screw, the other to give the wheels their rotary motion. The correct correlation being established, it is estimated that 60 per cent. of the revolution of the wheel will be forward. Thus, with a wheel of 75½ yards circumference, revolving at the rate of 24 revolutions a minute, the maximum number of revolutions, the vessel would cover a distance of 1,087 3-5 yards a minute, or about 37 miles, that is 32.22 knots, an hour. The voyage from Havre to New York would at this rate occupy a little under 100 hours. Among other advantages may be mentioned the small amount of rolling that, it is said, would take place, even if the wheels on one side were forced to the level of the water; the ease with which repairs to the hull could be undertaken, docking being unnecessary; and injury to a wheel even could be made good without putting into port, the damaged wheel and its corresponding wheel on the opposite side only being stopped while the repairs were executed, the remaining wheels continuing their functions.

THE COLLISION AT SEA.

THE RECORD does not usually print poetry, but the following "Rudyard Kiplingite," by Zero, in the *Coast Seamen's Journal*, San Francisco, contains more than a spice of practical truths:

Crushing through the Northern sea, never mind the weather,
Reeling twenty knots an hour, never caring whether
Some confounded fishing smack, collier deeply laden,
Strikes her plumb amidships, sends all hands to Aiden.

Floating palace, mails on board, passengers are hurried;
Competition, life of trade, owners sadly worried—
Getting foggy? Never mind, hooker must be driven;
Trusted captain, good lookout, leave the rest to heaven.

Boats are frozen in the chocks, tackles hard as iron—
State of things that makes the tar vent some language dire on—
Soogee-moogee, holystones, all in good condition;
Polish brasswork, make her shine, that's the sole ambition.

See her raise the froth ahead, feel the whole hull vibrate!
Peer into the engine-room, steely monsters gyrate!
A1 at Lloyds, built on the Clyde, isn't she a treasure?
"Hell or Sandy Hook on time"—that's the owners' pleasure.

Cargo steamer bound across, Dutch coast to Aberdeen,
Upon the liner's larboard bow displays her light of green;
"Green to port keeps clear of me," the liner's captain thinks—
Cargo steamer's lookout takes another forty winks.

Great collision! awful tale!! world in sad commotion—
Thrice a hundred and three score lives lost in the ocean;
Cargo steamer hit her, smash! gurgle, all is over—
'Surance paid up, cent per cent, owners are in clover.

The third line in the fifth verse is covered in the well known rhyme of the "rules of the road," as follows:

But when upon your port is seen
A steamer's starboard light of green,
There's not so much for you to do,
For green to port keeps clear of you.

LAKE APPROPRIATIONS.

In the sundry civil bill, as reported to the Senate, there is an appropriation of $20,000 for range lights in the Maumee Bay, at Toledo, which was secured by Senator Brice. The senator's efforts to get an appropriation for Sandusky were not successful. Other additions were as follows: Completion of lighting of north and south ends of Grassy Island, Detroit River, $6,700; fog signal at Eagle harbor, Lake Superior, Mich., $5,000; light and bell at Grand Marais harbor of refuge, on Lake Superior, $15,000; Tibbet's point light station, Lake Ontario, fog signal, $4,000; repairs to light-houses, increase from $480,000 to $500,000; salaries of keepers of light-houses, increase from $690,000 to $700,000; expenses of light vessels, increase from $275,000 to $300,000; expenses of buoyage, increase from $390,000 to $425,000.

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CLEVELAND, O., FEBRUARY 21, 1895.

CONTRARY to a wide-spread opinion, the steel steamer W. H. Gilcher foundered through fire and not on account of structural disability, or through her hatches having been left off.

BUREAU VERITAS and the underwriters' agents pronounce the Atlantic line steamer La Gascogne again ready for work. Where are our American classification societies in this important survey ?

AND now Detroit wants a branch hydrographic office and we venture to say that the "City of the Straits" will get what she is after. President Livingstone, of the Lake Carriers' Association, heartily endorses the action taken by the Chamber of Commerce, and pledges the support of a majority of vessel owners and masters. Buffalo has also forwarded to Washington a draft of resolutions asking for the establishment of a branch office at that port.

IF Great Britain is not prepared to enforce the new steering and sailing code as agreed upon by her representatives five years ago at the Washington International Marine Conference, enacted by congress in August, 1890, amended May 28, 1894, and proclaimed by the President of the United States, last July, to go into effect March, 1895, then that country is properly absolved from entering into any future international conferences on this subject. It was generally conceded that the British delegates to the conference controlled in a large measure the action of that body and were supposed to voice the entire interests of Britain on the subject of handling vessels. An abrupt change of front has now developed and other maritime nations have been coerced into an arrangement with England to suspend the revised rules indefinitely. It will not do for the oversea tonnage of this country to be guided by one set of rules while all other craft maintain a different code, so no matter how much indignation may be expressed the United States has no alternative but to drop into line and rescind its former action. Congress, therefore, will need to act promptly in annulling the president's proclamation and place the onus of disagreement on Great Britain, although such action is a great deal like walking up the hill and down again, and all this, too, to the tune of the British delegates to the International Marine Conference. It is only right to state, however, that the postponement of the revised rules has been brought about through the united and determined action of English shipmasters and owners in spite of a bull dog pertinacity evinced by the board of trade controlling the marine end of that government in its efforts to carry out the revised rules, and the result has shown that the practical men gained the day over lawyers and theorists in much the same manner as the shipmasters and owners of lake tonnage recently set aside the revised rules for lake use. The reasons that the United States should feel indignant in this matter of making and unmaking laws, even before they had gone into effect, lays primarily in the eleventh hour action of the British government, and in the second place to the denseness and vacillation of the British sailing community in not taking earlier action to procure what they wanted.

THE INTERNATIONAL CODE OF SIGNALS.

Frequent reference is made regarding the use of the international code of signals on the lakes, and although it is in use at all life-saving stations, and carried as a precautionary measure on a few steamers, many of our readers will be surprised to learn that it is not an authorized method of signaling between American vessels, or from or to stations.

With commendable, though somewhat premature official zeal, the U. S. Navy Hydrographic Department has issued an American edition of the code book of signals for the use of all nations, although, as we have said, the code has never been recognized by the United States; consequently, it is a questionable proceeding for any government department to antedate or anticipate the enactment of national legislation; yet, for that matter, custom has invariably forced legislative action in American maritime matters, instead of law directing and governing custom, and so it will be until the national department of marine is readjusted and placed on a practical basis, liks that of other countries. In the meantime, the mercantile marine, or more especially the coast, lake and river tonnage are fairly well able to regulate their own customs without legislative assistance.

On the subject of the code of signals purloined from other nations and not yet legalized for use in the United States, although becoming quite customary, we may state that at the beginning of the present century a system of signaling by means of flags was devised for use in the British merchant service. Fifty years later nearly a dozen different codes had been invented and more or less adopted, but Marryat's held the sway, the flags representing numbers, instead of letters as at present. Forty years ago, or more closely speaking, on July 2, 1855, a committee was appointed by the British Board of Trade, and they evolved the international code, which a year later was favorably received by that government and has since been adopted by thirteen other nations.

The international code has for its object to supply the means of communication when off shore. It contains the elements of a universal maritime language, so that it is quite practicable for any two or more vessels of different nationalities, whether war or merchant, to communicate by precise signal equivalents in their different languages, even where neither understands the language spoken by the other. The entire code contains only eighteen flags, consisting of thirteen square flags, four pennants, and a burgee, or code flag. It is in universal use; its completeness and the general favor which it receives is positive proof that it meets the demands of maritime nations and is the only recognized language of the seas. Why then should the United States not give it national sanction by its approval, or, can we invent an improved code for the fourteen other maritime nations to adopt ?

The supervising inspector-general of steamboats or the commissioner of navigation ought to suggest to the Secretary of the Treasury the advisability of adopting the international code for use by American vessels, or perhaps a Congressman might push the question through the House, considering it is now actually in use, and the only means whereby an American vessel can open communication with the shore or transmit messages to other vessels when at sea.

Of course the masters and officers of American steamers in the coast and ocean trade are examined as to their knowledge of the universal code of signals before licenses are granted to them, and if so, it would appear that the local inspectors should request that this portion of their catechism should be legalized before insisting any longer on Americans learning a foreign code not recognized by the United States government.

TO NAVIGATE HARBORS.

ANOTHER bill, H. R. 8563, containing rules for the navigation of harbors and rivers, has passed the Senate this week, and been referred to the House.

We have now the new international code as arranged by the marine conference, held at Washington several years ago, and adopted by the principal maritime nations, to go into effect March next; also the new rules for the Great Lakes and their connecting and tributary waters as far east as Montreal, and now comes the bill embodying rules for the safe navigation of harbors and rivers which the Senate, with the solemnity of a gathering of owls, passed in due course as being highly necessary, etc. This last bill is entitled "an act to prevent collisions at sea," but it does not apply to the sea, the coast, nor to the lakes or their tributary waters, therefore, it is difficult to see where it should apply, although the Senate says that this legislation "is hereby declared special rules duly made by local authority."

Such rules, receiving the President's signature, are national in their intent, force and bearing, and not local at all, nor should they be. New York, Boston, Philadelphia, San Francisco, Chicago, Cleveland, or Buffalo, in fact no port in the country requires congressional and therefore national action, to regulate steamboats occupying wharves and docks, or leaving and arriving at same. The city ordinances, port rules and harbor master's local authority give him jurisdiction over tonnage moving within the harbor or city limits; as for the navigation of harbors, there is none of it being done unless the U. S. Senate considers that moving from dock to dock, etc., or point to point, is navigating; and even if such was the assumption, local rules govern and are likely to continue in force.

The situation as it occurs to us, and in the face of this new bill, instead of formulating rules to prevent collisions at sea, shows a disposition to bolster up the idiotic "rules of the road," held in force during a quarter of a century through the ignorance, if not tyranny, of the board of supervising inspectors of steamboats and the chief thereof. They still apparently desire to dabble in the methods of handling vessels underway, although the practical men on the lakes have been compelled to frame their own laws, and have them passed, too, a feature which a few years ago THE RECORD warned the inspectors would eventuate. Hence, like a certain historical character who found his occupation gone, the supervising inspector-general of steamboats can't feel happy without invading local waterways, harbors, creeks and inlets under state jurisdiction, and telling tugs, lighters, as well as all miscellaneous harbor craft, how to prevent collisions at sea.

Would it not be a desirable change to place national rules for the conduct of merchant tonnage and the licensing of the men who handle same in the hands of the Commissioner of Navigation and allow the U. S. Steamboat Inspection Service to become more nearly what it actually is, viz., an equipment inspection bureau. This last prop to bolster up an unwarranted official authority by adopting federal regulations for preventing collisions at sea, made applicable only to the navigation of harbors already provided for by local ordinances, smacks of the ruined gambler playing his last card, though we venture to say that in this case the trick will be won, owing chiefly to the pressure which the chief of the inspector service will manipulate among legislators not versed in marine matters and again by the negative sort of legislation required to push it through both Houses and thence smoothly along for the President's signature.

ACKNOWLEDGE ENGINEERS' SKILL.

We suggested in a previous issue of THE RECORD that while the master and bartender of the Atlantic Liner La Gascogne were perhaps contented with being popularly slopped over, kissed and presented with floral wreaths on the safe arrival of the vessel at New York, the engineers, to whose efforts the eventual arrival of the steamer was mainly due, were entitled to a substantial consideration from the owners and underwriters for their exhibition of skilled workmanship under the most trying conditions that expert mechanics could be placed in.

The Cleveland Association of Marine Engineers, taking note of the incongruity of the situation, and as an intelligent body of men banded together for mutual improvement, beneficence and advancement, they could not do otherwise, took up the question at one of their regular meetings a few days ago, and adopted the following preamble and resolutions, which being a good thing, ought to be pushed along among the two or three score of sister lodges and endorsed from a national standpoint, although we are proud to record the Cleveland engineers as taking the initiative in framing these commendable resolutions:

"Whereas, the safe arrival of the steamship La Gascogne in New York harbor, after a delay of eight days at sea, caused through an unavoidable accident to her machinery, has been telegraphed all over the world and brought much rejoicing and congratulations; and

"Whereas, the engineers' department of the steamer, which was mainly instrumental in bringing her safe into port, has been entirely ignored and unnoticed by the public and the Associated Press, be it

"Resolved, That Marine Engineers' Beneficial Association, Lodge No. 2, do herewith tender its highest compliments to the chief engineer and his assistants, upon their skill and management in working under that most difficult of trying situations, a disabled ship in a gale of wind, and further, the members of Lodge No. 2, take great pleasure in extending their heartiest congratulations to the chief engineer of the steamship La Gascogne and his department upon successfully overcoming all difficulties and in bringing their ship safely to her port of destination. And be it further

"Resolved, That these resolutions be spread upon our minutes and a copy be sent to the press of this city and to the steamship company owning La Gascogne."

A national endorsement on parchment from American marine engineers, suitably engrossed and elaborately mounted and framed, would be an all life token which the corps of engineers on the big ship might point to with some degree of pride and hand down to their progeny as being the reward of skilled devotion to their duty, all of which is very congratulatory, etc., but, ordinary business methods will not be fulfilled unless "the substantial token of appreciation," which we called for in a former issue, is also awarded to the several engineers, in degree or proportion according to their rating and responsibility, and this "marked estimation" ought to be expressed in about five figures as recorded by United States currency.

Diplomas, certificates, medals, congratulatory resolutions for heroic services, etc, are all very excellent, but it takes dollars and cents "to keep the pot boiling" now as ever, and extraordinary services are generally best acknowledged by a little extra compensation, at least such a view has always been taken from an underwriter's and owner's standpoint, and it is a most equitable and righteous one, too.

WE have received from the Bureau of Navigation, Treasury Department, a copy of the twenty-sixth annual list of merchant vessels of the United States for 1894. This volume is issued in compliance with the act of Congress, July 5, 1884, establishing the Bureau of Navigation and directing the Commissioner of Navigation to prepare each year a list of vessels belonging to the United States mercantile marine, in which is embodied the naval and departmental tonnage as well. Much credit is due the present commissioner, Hon. Eugene T. Chamberlain, for the enhanced appearance of the current volume.

CLEVELAND'S NAVIGATION INTERESTS.

The committee on navigation filed a very important report at Tuesday evening's session of the Cleveland Chamber of Commerce. Capt. C. E. Benham is chairman of that committee, the other members being Harvey D. Goulder, Harvey H. Brown, H. G. Dalton, and A. L. Stone. The report recommends the formation of a maritime board within the membership of the Chamber. "Such a board," says the report, "could find a field for work in the collecting and dissemination of general marine news of interest to its members, and a care for the commercial business of the port. It could, when occasion demands, be prepared to consider quarantine matters, marine bills of lading, questions affecting the life-saving service, the marine hospital service, maintenance and advancement of government marine improvements, harbor facilities and improvements, have a voice in the appointment, without regard to their politics, of city officials whose work touches navigation interests, work in harmony with the hydrographic service, widening and improving its work whenever the peculiar needs of lake commerce may suggest, take action in the matter of bridges and obstructions in the navigable rivers of the Great Lakes, the manner and extent of dredging in the Cuyahoga, keep a record of charters, of clearances, and arrivals, of light-house notices, have a list of vessels in port, an abstract of logs; keep for reference commercial circulars, code books, harbor rules and regulations of other ports, and act for the enforcement of proper rules and regulations of this port. It can consider the question of towage rates, the organization of seaman's charities, the organization of a state naval reserve, illegal dumping of refuse in the harbor, advocacy of arbitration in marine cases, the improvement of abuses in government methods related to our commerce, the inspection of ores on request, regulation of demurrage rates, the advocacy of legislation that will insure correct tonnage reports of all vessels clearing at all harbors, and many other similar subjects that may suggest themselves. Cleveland is the headquarters of the inland marine service, and such an organization could not fail to exert a large influence in the unifying of the various lake interests for the attainment of benefits, in a systematic way, of general and local importance."

The report of the committee on transportation gave considerable attention to lake interests, showing figures relative to water as well as all rail commerce. The port receipts and shipments aggregated 3,424,410 tons for 1894, out of a total of 11,804,913 tons as the entire commerce for the city.

CHICORA SALVAGE.

Capt. E. E. Napier, of South Haven, Mich., has been awarded the contract for finding the hull of the lost steamer Chicora. He is to receive $5,000 when he finds her. Capt. Napier had made an offer to the Graham & Morton Transportation Co. of several times the above figure for the wreck where she lies, and after his proposition had been discussed by officers of the line, they began to share Capt. Napier's confidence as to locating her. Capt. Napier has been forming plans for his search, which will begin as soon as the ice breaks up in the spring. He has plans of his own, which he says have never been tried, for searching the bottom of the lake. If he finds the boat, some, if not all of the bodies of the twenty-three persons who were drowned will undoubtedly be recovered.

VESSEL TRANSFERS.

The following transfers of vessel property have recently been filed at the custom house in Buffalo:

Frederick Landen and Jacob Schwartz, of East Saginaw, to William F. Warren, Charles K. Pederson and John Nelson, of Tonawanda, propeller P. H. Birckhead, consideration, $12,000; G. W. Gardner and others, of Cleveland, to W. S. Jones, of Buffalo, schooner yacht Wasp, consideration, $1; Joseph W. McGraw, of Bay City, to August Jean, one-eighth of propeller Samuel Marshall, consideration, $6,250; William E. Carroll and Samuel S. Carroll, of Buffalo to Buffalo Dredging Co., tug H. J. Warren, consideration, $6,500.

APPOINTMENTS FOR NEXT SEASON.

It is now announced that Capt. Fred Rae will sail the steamer Lewiston. Capt. George B. Brock, last season master of the schooner J. J. Barlum, will sail the steamer Alcona. Capt. Thomas Dunn, of Milwaukee, will again command the steamer J. C. Pringle, the coming season. Capt. J. Q. Owen will command the Ira H Owen, and Capt. George Merritt the Parks Foster, although the management of these steamers has passed from W. R. Owens of Chicago, into the hands of H. H. Clough, of Elyria.

Capt. Chas. S. Furey has been named as master of the steamer Shenandoah. Capt. Lewis Young, formerly of the Fred Pabst, will command the first of the Shenango car ferries, which will be known as the Lady Aberdeen.

SHIP CANAL BETWEEN THE LAKES AND THE ATLANTIC.

The following joint resolution was reported to the U. S. Senate this week without amendment:

Be it resolved, etc., That the President of the United States is authorized to appoint, immediately after the passage of this joint resolution, three persons, who shall have power to meet and confer with any similar committee which may be appointed by the Government of Great Britain or of the Dominion of Canada, and who shall make inquiry and report whether it is feasible to build such canals as shall enable vessels engaged in ocean commerce to pass to and fro between the Great Lakes and the Atlantic Ocean, with an adequate and controllable supply of water for continual use; where such canals can be most conveniently located, the probable cost of the same, with estimates in detail; and if any part of the same should be built in the territory of Canada, what regulations or treaty arrangements will be necessary between the United States and Great Britain to preserve the free use of such canal to the people of this country at all times; and all necessary facts and considerations relating to the construction and future use of deep-water channels between the Great Lakes and the Atlantic Ocean. The persons so appointed shall serve without compensation in any form, but they shall be paid their actual traveling and other necessary expenses, not exceeding in all $10,000, for which purpose the said sum of $10,000, or so much thereof as may be necessary, is hereby appropriated.

The President may, in his discretion, detail as one of such persons an officer of the Engineer Corps of the Army.

TRADE NOTES.

The Muskegon Boiler Works Co. has been reconstructed relative to partnership and the works will be continued under an improved plan and a wider scope of management, Messrs. Stevens, Behrens and Dowd will, in future carry on the business of the late company and in all kinds of marine as well as stationary boilers they are pronounced in their desires and efforts to suit patrons.

We have received the illustrated catalogue and price list of the Acton steam and water specialties, as manufactured at 79 and 81 Washington street, Brooklyn, N. Y. Many of the appliances illustrated are made under patents granted the Acton Co., such as steam pump governors, automatic pump regulator and receiver, regulating and reducing valves, the Acton marine valve, grease extractor, etc. For specialties of this description the Acton Co. are always ready to enter into correspondence with intending purchasers.

The Russell & Watson illustrated catalogue for 1895 is an epitome of lamp manufacturing. Established at 139 and 141 Main street, Buffalo, in 1857, A. J. Russell and H. R. Watson, as successors to Felthousen & Russell, ably support the prestige gained by the old firm. Patent lens for high classed side-lights, head lights, anchor lamps, binnacle lamps, and torches, besides the best known steel ranges are the specialties manufactured by this reliable and well known house.

The Nicholson File Co., Providence, R. I., are out with a handsome new cloth-bound catalogue fully illustrating files, rasps and tools. This volume is entitled to a more than usual mention on account of its inclusive features, size and typographical appearance, the latter not being surpassed by any trade literature that has recently come under our notice. The Nicholson File Co., incorporated in 1894, at Providence, hoped to reach the output of 300 dozen files per day, while in 1893 the product rose to 3,000 dozen files per day and the company are now prepared to manufacture over 3,000 different kinds of files and rasps, grading from a jeweler's tool to the heaviest kind used in mechanical work. There seems to be no question, according to the literature now before us, but that the Nicholson increment cut files are the best manufactured, not only in the United States, but the whole world over.

It is agreeable and congratulatory to state that after so much enforced idleness in the industries of the country there are signs of our old-time and renewed activity again. The Roberts Boiler Works, of Red Bank, N. Y., and 41 Cortlandt street, New York city, have been working night and day for a period of some months and they have still orders enough to keep them busy far into the future. The Roberts is claimed as being the oldest pipe boiler in the field and that it has never needed any improvements except in excellence of construction and material since it was first introduced, while eight hundred of their boilers vouch for their manufacture. In addition to the Roberts Boiler Works building these tubulous boilers, it is learned that the Union Iron Works, of San Francisco, and the Bertram Engine Works, of Toronto, Ont., also manufacture, under patent rights, the Roberts Safety Water Tube Boiler.

NOTES.

The net earnings of the Richelieu & Ontario Navigator Co., are said to have amounted to $164,000 for the season of 1894, or about 11½ per cent. of the capital stock. The amount carried to profit and loss is $43,000, after allowing for interest and fixed charges and paying a 6 per cent. dividend.

The bids opened at the navy department this week for the construction of three new torpedo boats were very complex, covering a number of departures in the proposals for construction. The lowest bid was that of $97,500 each for three boats of their own design by the Columbia Iron Works, of Baltimore, and the highest was $438,000 for three boats of his own design by Hugh Ramsay, of Perth Amboy.

STEAM TOWING MACHINES.

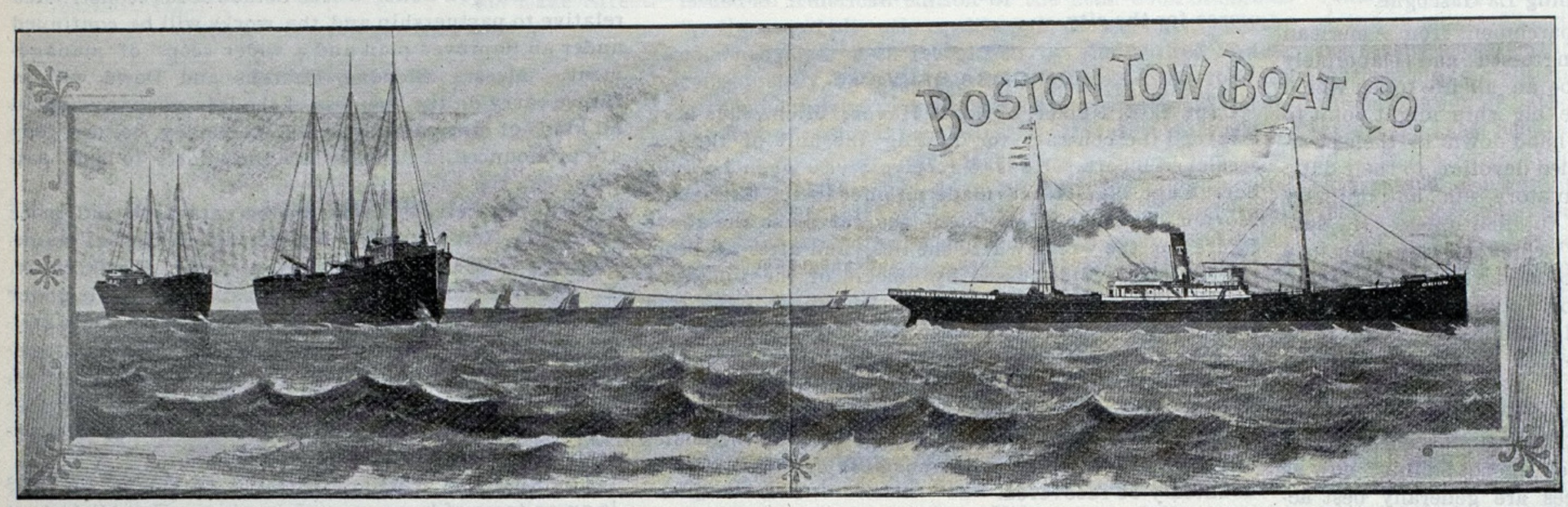
ILLUSTRATED.

There is an economy of transportation in use on the Great Lakes far beyond the custom in any other locality in the world. We refer to the system of placing as consorts two or more immense schooners and barges, aptly termed "ships in disguise," to tow with each steamer engaged in the general carrying trade of the lakes. Up to within two years ago all steamers, with but one exception, towed with large manilla hawsers, and owing to the frequency of making port as well as the long stretches of rivers to be towed through, such as the St. Mary's, St. Clair, Detroit and Niagara, the constant use given to manilla punished and wore out during each season a vast amount of that fiber spun up into hawsers. About four years ago Capt. John Corrigan, an owner of the heaviest class of tonnage, desiring to place a still greater reliance on towing hawsers and so that at least one of his powerful steamers might always be fitted to cope with the heaviest possible tow under the most stormy weather conditions, introduced towing by flexible steel wire hawsers of far superior strength to manilla, which he found were much lighter, had 75 per cent. more durability and could always be depended on to stand the strain when heavier towing than usual became necessary. Having demonstrated the feasibility and economy of using flexible steel wire for towing in place of manilla, there was yet the difficulty of properly handling a long wire tow rope to be overcome. Besides the reel for carrying the wire tow-rope, powerful springs were tried so as to give and take when sudden strains came on the wire—all of which helped the life of the rope and made towing easier for both steamer and consorts. At certain places in the navigation of the lakes and always when entering port the tow line is shortened up, and it wasfound that a mechanical contrivance was necessary in order to save hand labor in hauling in the tow rope when it was required to bring the consort closer to the steamer, and also on reaching port.

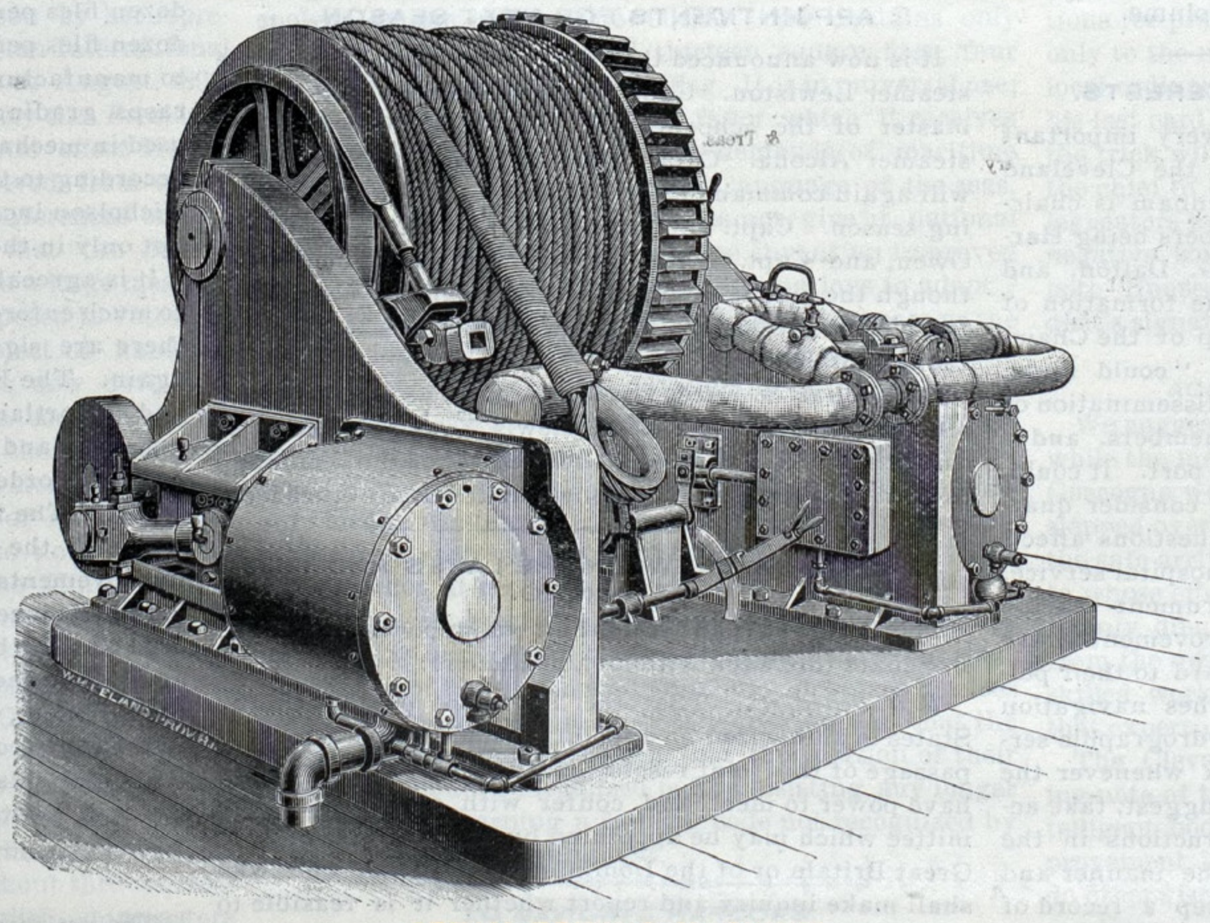
At this time attention was directed towards the steam towing machine built by the American Ship Windlass Co., Providence, R. I., and after some correspondence, one of these machines was purchased and placed aboard of the powerful wooden steamer Aurora, where it has been for two seasons, giving excellent satisfaction and no doubt enabling the steamer to save several days time in the course of the season through there being no delays, as is frequent in all other cases when shortening up or hauling in the tow line.

The principle of the machine, herewith illustrated, is that the resistance of the towing barge is borne entirely by the steam pressure in the cylinders. The wire hawser is wound on a drum, which is driven directly by a pinion gear on the crank shaft of the engines. The machine is fitted with a reducing valve, which enlarges the opening of the valve or decreases the opening, according as the strain increases or decreases. In a sea-way, or when the vessel pays off, increasing the strain on the hawser, the drum begins to revolve, so as to pay out the hawser, and this action opens the reducing valve and increases the pressure in the cylinders and continues to do this until the pressure is adequate to hold the strain on the hawser; then, if the strain decreases on the hawser, the pressure in the cylinders revolves the drum and winds the hawser in. In this way the machine is prevented from paying out the whole of the hawser and only enough to relieve the strain on the same to prevent its breaking. By this arrangement the hawser is at all times relieved from any sudden strain, and the elasticity of the steam furnishes a cushion for the pistons, so that it completely protects the hawser and gives an elasticity without which the same would be disabled in a short time. When the tow barge casts off the hawser the reducing valve is disconnected and the machine is a simple hoisting drum and can be started to wind up the slack hawser.

Thus it will be seen that the tow line is not handled at all, as the automatic operation of the machine winds up and pays out the line, without the necessity of any person touching it in any way whatever. A device embodying the essentials of this towing machine has been worked on for many years past, but without any practical results until taken hold of by the American Ship Windlass Co., who now have orders for several more on the lakes to be placed on boats owned by such firms as the Minnesota Steamship Co.; Pickands, Mather & Co., Cleveland; Capt. James Davidson, shipbuilder and owner, Bay City, Mich.; and probably the American Transportation Co., Fairport, O., as well as the one now in use and highly endorsed by the Corrigan Line, it having been tested by towing two vessels, one of 2,500 and the other of 1,500 tons capacity, saving, as we have said, 75 per cent. in the cost of tow lines, much valuable time in the course of the season and probably a hand in each barge, as the machine works automatically. As the merits of the towing machine become more apparent, the manufacturers are regularly receiving inquiries from those engaged in the towing business, asking for full and complete information regarding the machine. These inquiries come from Great Britain, Philadelphia, New York, San Francisco, the Great Lakes and other localities, and at this time there seems to be no question but that the towing machine will be come the recognized method of towing large vessels in this country as well as abroad.



STEAMER "ORION" OF BOSTON TOWBOAT CO., USING STEAM TOWING MACHINE.



STEAM TOWING MACHINE.

Relative to its introduction and success on the lakes much credit is due to Capt. John Corrigan forhis energy and perseverance in breaking away from the expensive, laborious and time killing system of towing consorts formerly in use and of course, the manufacturers of the machine. The American Ship Windlass Co., Providence, R. I., are to be congratulated on their success in placing on the market a machine guaranteed to effect so great an economy besides rendering the towing features of transportation safe and reliable in all weathers and under the varying conditions of a long or short haul traffic. The cuts reproduced herewith give an exact view of the machine itself and also of the Boston Tow Boat Co.'s steam collier Orion, equipped with the machine for towing barges on the coast.

The president of the Lake Carriers' Association, Mr. Wm. Livingstone, who is certainly an authority on the subject, stated recently that the commerce carried on with consorts being towed was comparatively in its infancy and from this time on a much larger proportion of lake tonnage than ever before would be engaged in the towing business and that a majority of the large steamers would always have one or more large consorts in tow. Such being the case, the steam towing machine is destined to become an essential part of the equipment of all large cargo steamers on the lakes.

A FAST PASSENGER BOAT.

The Flyer is the name of a steamer that makes four daily trips on Puget Sound between Seattle and Tacoma, according to an exchange. In 1894 she made the record of of 68,695 miles between those two cities. The total loss of time for the year was only 43 minutes. There was considerable fog and smoke over Puget Sound at times during the year, but the Flyer went right through, always being on time, come what might. The distance between Seattle and Tacoma by water is 27½ miles; by land it is about 40 miles. The Flyer is run in competition with the through trains, and practically makes the same time, so that it is a popular means of travel. The round trip of 55 miles between the two cities is covered in three hours, and the four trips a day make the total distance traveled daily 220 miles. The Flyer is a screw boat 200 feet long and runs so smoothly at high speed that scarcely a vibration can be noticed. She also makes very little disturbance in the water. There is almost no bow wave, and the wake is hardly greater than that of a river tug. Her machinery was made on the Delaware, and was set up by engineers from the East.

CAPT. ANGUS MCDOUGALL, formerly with the American Steel Barge Co., has opened a vessel agency and insurance office in the Board of Trade building at Duluth, and solicits the patronage of owners of vessel property frequenting that port.

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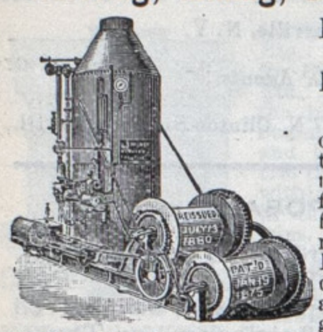

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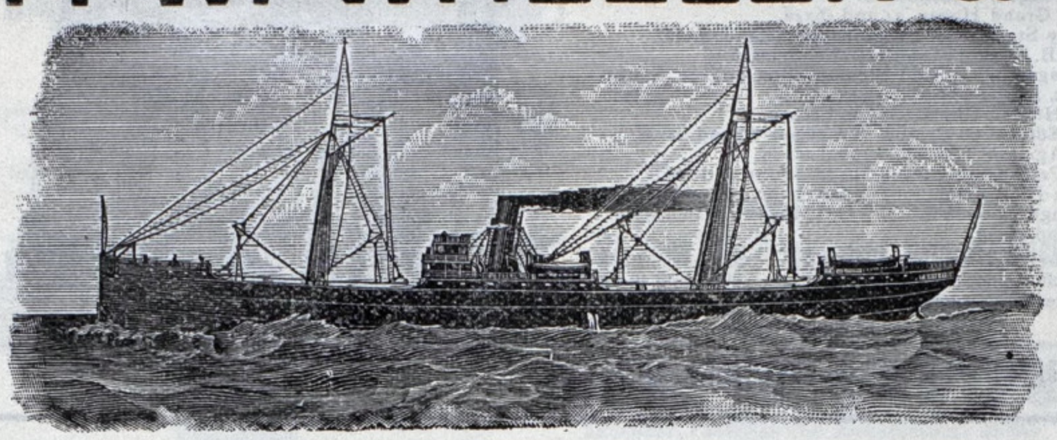

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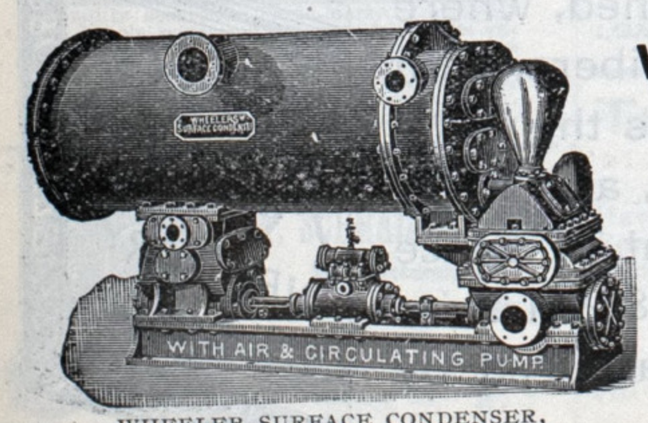

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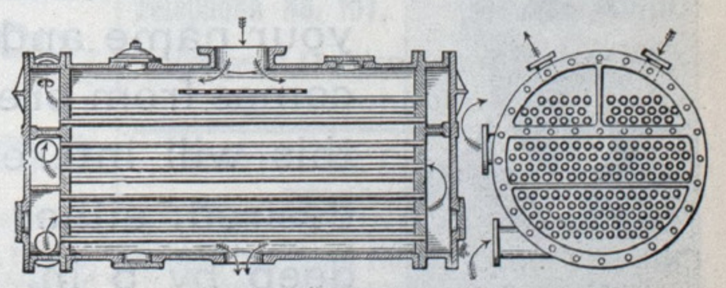

PATENT COMBINED SURFACE CONDENSER AND FEED-WATER HEATER.

PROPOSALS.

U. S. ENGINEER OFFICE, 34 West Congress St., Detroit, Mich., January 30, 1895. Sealed proposals for furnishing all labor, materials and appliances for A, Removing Portions of a Shoal at the Upper End of Hay Lake Channel and for B, Cleaning up Shoals near Nine Mile Point, Hay Lake Channel, will be received here until 2 p. m., March 1, 1895, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application. O. M. POE, Col. Corps of Engineers, U. S. A., etc. 5-8

U. S. ENGINEER'S OFFICE, Duluth, Minn., January 28, 1895. Sealed proposals for furnishing cement, broken stone, sand, iron and timber for concrete superstructure to breakwater at Marquette, Mich., will be received here until 12 m. February 28, 1895, and then publicly opened. Further information furnished upon application. CLINTON B. SEARS, Maj. Engineers. 9-B

OFFICE OF LIGHT-HOUSE ENGINEER, 9th and 11th Districts, Detroit, Mich., Feb. 11, 1895. Sealed proposals will be received at this office until 3 o'clock p. m. on Saturday, the 2d day of March, 1895, for furnishing the boilers for ten steam fog signals, in sets of two, delivered at the Light-House Depot at Detroit, Michigan. Plans, specifications, forms of proposal and other information may be obtained on application to the undersigned. The right is reserved to reject any or all bids and to waive any defects. M. B. ADAMS, Major, Corps of Engineers, U. S. A., Light-House Engineer. 7-9

U. S. ENGINEER OFFICE, Newport, R. I. February 9, 1895. Sealed proposals, in triplicate, for dredging on Green Jacket Shoal, Providence Harbor, R. I., in Taunton River, and in Hyannis, Edgartown and New Bedford Harbors, and Canapitsit Channel, Mass., and for removing ledge rock in Pawtucket River, R. I., will be received here until 12 o'clock, noon, March 20, 1895, and then opened. Full information furnished on application. W. H. BIXBY, Capt., Corps of Engineers, U. S. A. 8-11

OFFICE OF LIGHT-HOUSE INSPECTOR.—Tenth District, Buffalo, N. Y., February 11, 1895. Proposals will be received at this office until 12 o'clock m., on Thursday, the 28th day of February, 1895, for maintaining all the Buoys now in the Niagara River, New York, and at Waverly Shoal, Lake Erie, and such others as may be authorized, for one year, from the first day of July next. Forms of proposals and printed specifications, showing what is required, can be had by applying to this office. The right is reserved to reject any or all bids, and to waive any defects. CHARLES V. GRIDLEY, Commander U. S. N., Light-House Inspector. 28

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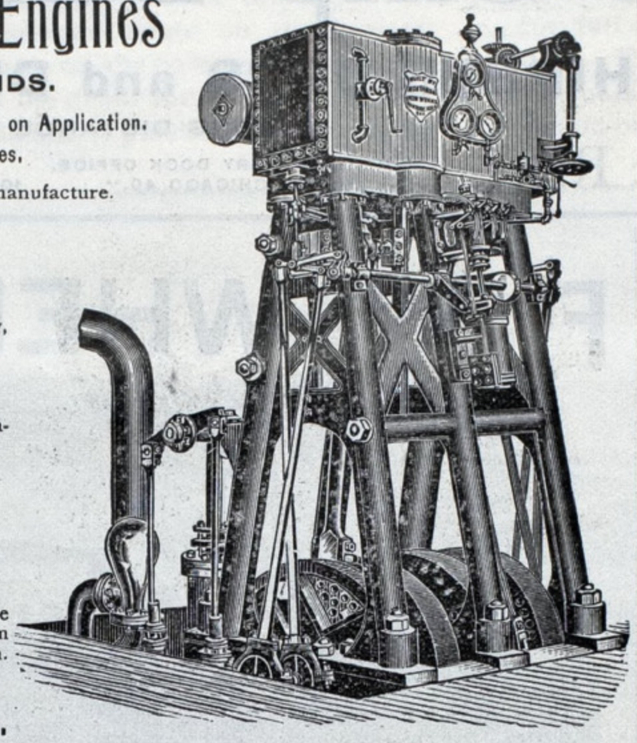

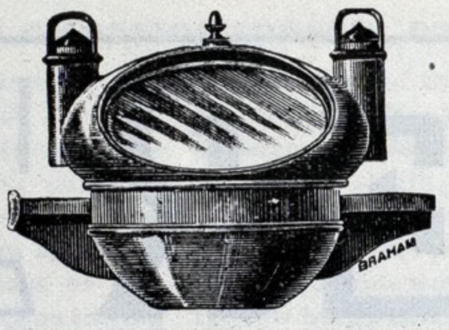

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PROPOSALS.

OFFICE OF LIGHT-HOUSE INSPECTOR.—Tenth District, Buffalo, N. Y., February 11, 1895. Proposals will be received at this office until 12 o'clock m., on Thursday, the 28th day of February, 1895, for furnishing and delivering Fuel for Vessels and Stations in this District, for the fiscal year ending June 30, 1896. Forms of proposals and printed specifications, giving full particulars as to the kinds of fuel required, the quantity and quality, and the terms of delivery and payment, can be obtained at this office. The United States reserves the right to increase or diminish, during the fiscal year, the quantities of any item or article named in the specifications, and a clause to that effect will be inserted in the contract; and the right to reject any or all bids, and to waive defects therein, is also reserved. CHARLES V. GRIDLEY, Commander, U. S. N., Light-house Inspector. 28

OFFICE OF LIGHT-HOUSE INSPECTOR, Tenth District, Buffalo, N. Y., February 11th, 1895. Proposals will be received at this office until 12 o'clock m., on Thursday, the 28th day of February, 1895, for furnishing and delivering provisions for Vessels and Light-Stations in this district. Forms of proposals and printed instructions giving full particulars as to the articles required, and the terms of delivery and payment, can be obtained at this office. The right is reserved to reject the whole or part of any or all bids, and to waive any defects. The United States reserves the right to increase or diminish (not to exceed one-third) during the fiscal year, the quantities of any item or article named in the Specifications, and a clause to that effect will be inserted in the contract. CHARLES V. GRIDLEY, Commander, U. S. N., Light-House Inspector. 28

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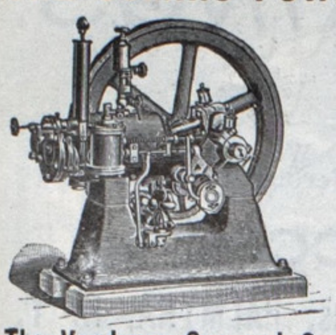

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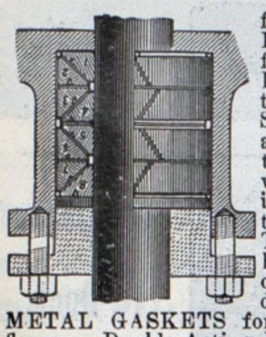

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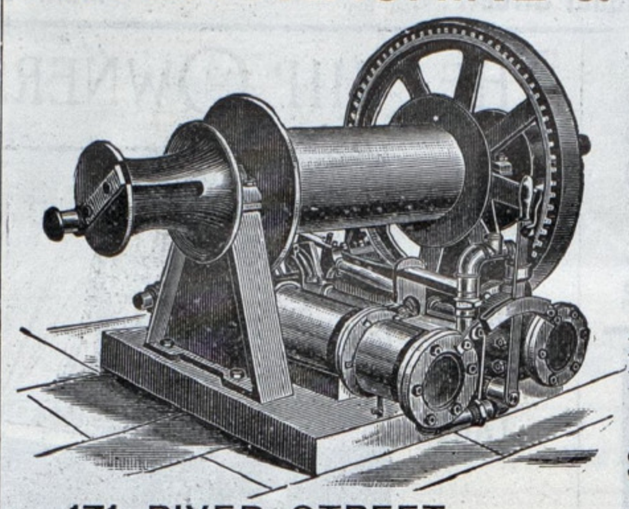

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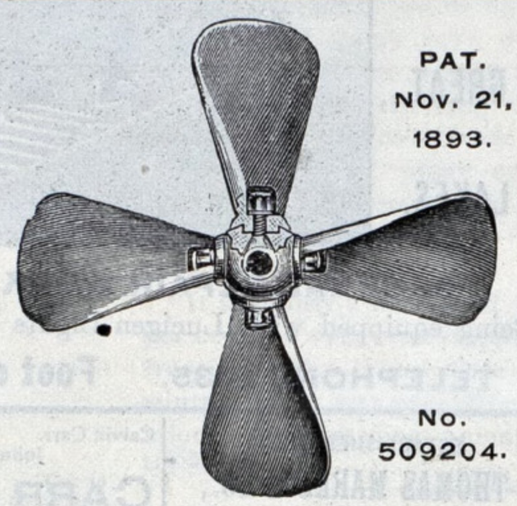

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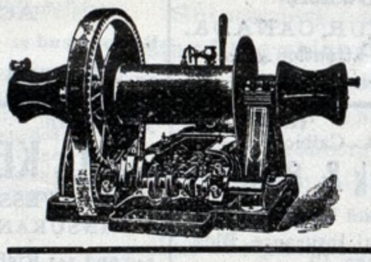

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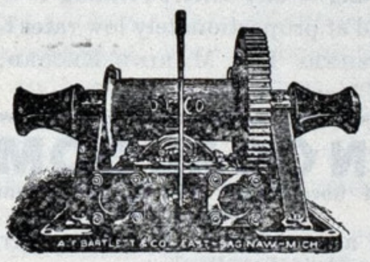

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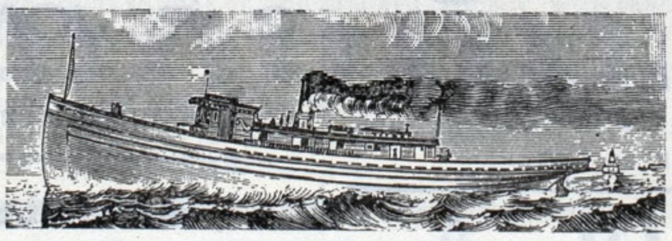

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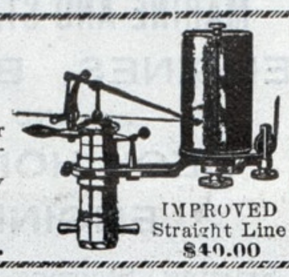

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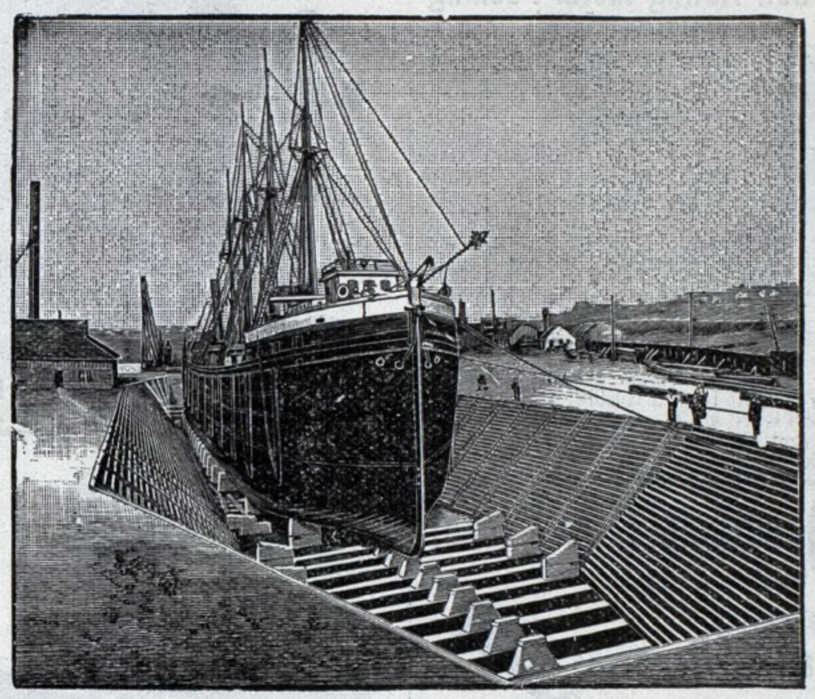

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